AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of drilling a borehole in a subterranean formation comprising:

providing a variable density drilling fluid that comprises a base fluid and a plurality of elastic particles, wherein at least one of the elastic particles is coated with a material selected from the group consisting of: a silane, a silicone polymer, a latex, ethylene oxide, propylene oxide, acrylic acid, 2-acrylamido-2-methylpropane sulfonic acid, an aminoalkoxysilane, and a mixture thereof; and

circulating the variable density drilling fluid into the borehole in the subterranean formation as part of a drilling operation;

wherein the variable density drilling fluid has a density that varies as a function of the pressure in the subterranean formation.

2-5. (Canceled)

6. (Original) The method of claim 1 further comprising the step of producing a fluid from the subterranean formation.

7. (Currently Amended) The method of claim 6 wherein the fluid comprises a fluid chosen from the group consisting of: oil, gas, and mixtures thereof.

8. (Previously Presented) The method of claim 1 wherein the borehole has a diameter that differs no more than about 25% along the length of the borehole.

9. (Original) The method of claim 8 wherein the borehole has a diameter that differs no more than about 1% to about 5% at any two points along the length of the borehole.

10. (Currently Amended) The method of claim 8 wherein the borehole comprises strings of casing, wherein a ~~the~~ substantial majority of the ~~which~~ strings are made from a similar ~~the same~~ piping schedule.

11. (Previously Presented) The method of claim 1 wherein the method does not comprise a step of circulating a different fluid from the variable density drilling fluid at any point during the drilling of the bore hole.

12. (Currently Amended) The method of claim 1 wherein a ~~the~~ portion of the elastic particles comprises elastic particles comprising a copolymer of styrene and divinylbenzene; a copolymer of styrene and acrylonitrile; or a terpolymer of styrene, vinylidene chloride and

acrylonitrile.

13. (Original) The method of claim 1 wherein the elastic particles have an isothermal compressibility factor in the range of from about $1.5x10^{-3}$ (1/psi) to about $1.5x10^{-9}$ (1/psi).

14. (Previously Presented) The method of claim 1 wherein the base fluid comprises a fluid chosen from the group consisting of: water, a non-aqueous fluid, and mixtures thereof.

15. (Original) The method of claim 14 wherein the non-aqueous fluid comprises an organic fluid.

16. (Original) The method of claim 15 wherein the organic fluid is capable of emulsifying a water solution of salts.

17. (Previously Presented) The method of claim 15 wherein the organic fluid comprises a fluid chosen from the group consisting of: mineral oils, synthetic oils, esters, and mixtures thereof.

18. (Original) The method of claim 1 wherein the base fluid is present in the variable density fluid in an amount sufficient to form a pumpable fluid.

19. (Original) The method of claim 1 wherein the base fluid is present in the variable density fluid in an amount in the range of from about 20% to about 99.99% by volume.

20. (Currently Amended) The method of claim 1 wherein a ~~the~~ portion of the elastic particles is present in the variable density fluid in an amount in the range of from about 0.01% to about 80% by volume of the variable density fluid.

21. (Original) The method of claim 1 wherein the elastic particles further comprise an internal fluid.

22. (Previously Presented) The method of claim 21 wherein the internal fluid comprises a fluid chosen from the group consisting of: air, nitrogen, carbon dioxide, propane, isobutane, normal butane, normal or branched pentane, ammonia, fluorinated hydrocarbons, hydrochlorofluorocarbons, argon, helium, and mixtures thereof.

23. (Canceled)

24. (Previously Presented) The method of claim 21 further comprising the step of expanding at least a portion of the elastic particles before placing them into the variable density fluid.

25. (Previously Presented) The method of claim 24 wherein the step of expanding at least the portion of the elastic particles comprises expanding the portion of elastic particles up to about 40 times their original volume.

26. (Previously Presented) The method of claim 1 wherein at least a portion of the elastic particles can withstand pressures up to about 21,000 psi without crushing.

27. (Previously Presented) The method of claim 1 wherein at least a portion of the elastic particles can rebound to about their original size and shape when pressure is removed.

28. (Previously Presented) The method of claim 1 wherein at least a portion of the elastic particles can withstand temperatures up to about 500°F without degrading.

29. (Original) The method of claim 1 wherein the elastic particles are substantially impermeable to a fluid present in the subterranean formation.

30-33. (Canceled)

34. (Original) The method of claim 1 wherein the subterranean formation is located beneath the ocean floor, or on-shore.

35. (Canceled)

36. (Previously Presented) The method of claim 34 wherein the density of the variable density fluid increases as the pressure in the subterranean formation increases.

37. (Original) The method of claim 36 wherein the density of the drilling fluid in the borehole is in the range of from about 0.01% to about 300% higher than its density at sea level.

38. (Original) The method of claim 36 wherein the density of the variable density fluid in the borehole is sufficient to prevent fluid influx from a region of the subterranean formation adjacent to the borehole without fracturing a region of the formation.

39. (Original) The method of claim 36 wherein the subterranean formation is located beneath the ocean floor, and wherein the density of the variable density fluid decreases as the variable density fluid travels from the ocean floor to sea level.

40. (Previously Presented) The method of claim 1 wherein the variable density fluid further comprises at least one additive chosen from the group consisting of: a salt, a fluid loss additive, a shale swelling inhibitor, an emulsifier, a viscosifier, a pH control agent, a filtration control agent, and a fixed-density weighting agent.

41. (Currently Amended) The method of claim 1 wherein the variable density fluid is

prepared by adding a portion of elastic particles to a fluid above sea level, at sea level, below sea level, or a combination thereof.

42. (Previously Presented) The method of claim 1 wherein the borehole is in an ocean floor wherein a riser extends from the borehole to about sea level, and wherein a portion of the elastic particles are added to the variable density drilling fluid below sea level by injecting them into the riser.

43. (Original) The method of claim 41 wherein the addition of the portion of elastic particles to the fluid reduces the density of the fluid.

44. (Currently Amended) A method of drilling a borehole in a subterranean formation comprising:

introducing a variable density drilling fluid having a density that varies as a function of pressure into the subterranean formation, wherein

the drilling fluid comprises a base fluid and a plurality of elastic particles, wherein at least one of the elastic particles is coated with a material selected from the group consisting of: a silane, a silicone polymer, a latex, ethylene oxide, propylene oxide, acrylic acid, 2-acrylamido-2-methylpropane sulfonic acid, an aminoalkoxysilane, and a mixture thereof;

the elastic particles have an isothermal compressibility factor in the range of from about $1.5x10^{-3}$ (1/psi) to about $1.5x10^{-9}$ (1/psi); and

drilling the borehole in the subterranean formation using the variable density drilling fluid.

45. (Previously Presented) The method of claim 44 wherein at least one of the elastic particles comprises a copolymer chosen from the group consisting of: styrene and divinylbenzene; a copolymer of styrene and acrylonitrile; and a terpolymer of styrene, vinylidene chloride and acrylonitrile.

46. (Previously Presented) The method of claim 44 wherein at least one of the elastic particles has a specific gravity in the range of from about 0.05 to about 0.99.

47. (Currently Amended) A method comprising:

reducing loss of circulation of a drilling fluid in a subterranean formation, comprising the step of adding to the drilling fluid a plurality of elastic particles, wherein at least one of the elastic particles is coated with a material selected from the group consisting of: a silane, a

silicone polymer, a latex, ethylene oxide, propylene oxide, acrylic acid, 2-acrylamido-2-methylpropane sulfonic acid, an aminoalkoxysilane, and a mixture thereof, the elastic particles being capable of varying in volume with pressure.

48. (Canceled)

49. (Canceled)

50. (Previously Presented) The method of claim 47 further comprising the step of drilling a borehole in the subterranean formation using the drilling fluid.

51. (Previously Presented) The method of claim 47 wherein the elastic particles are present in the well fluid in an amount in the range of from about 0.01% to about 80% by volume of the well fluid.

52. (Previously Presented) The method of claim 47 wherein at least one of the elastic particles has a specific gravity in the range of from about 0.05 to about 0.99; and wherein at least one of the elastic particles has a compressibility factor in the range of from about $1.5x10^{-3}$ (1/psi) to about $1.5x10^{-9}$ (1/psi).

53. (Previously Presented) The method of claim 47 wherein at least one of the elastic particles comprises a copolymer chosen from the group consisting of: a copolymer of styrene and divinylbenzene; a copolymer of styrene and acrylonitrile; and a terpolymer of styrene, vinylidene chloride and acrylonitrile.

54. (Previously Presented) The method of claim 50 wherein the density of the drilling fluid is sufficient to prevent fluid influx from a region of the subterranean formation adjacent to the borehole without fracturing a region of the formation.

55. (Previously Presented) The method of claim 50 further comprising the steps of:

permitting a portion of the drilling fluid to enter openings in a region of the subterranean formation in fluid communication with the borehole; and

permitting the elastic particles present in the portion of the drilling fluid entering the openings in the region of the subterranean formation to at least partially block off the flow of the drilling fluid through the openings.

56. (Previously Presented) The method of claim 55 wherein the elastic particles present in the portion of the drilling fluid entering the openings in the region of the subterranean formation expand upon entering the openings.

57. (Previously Presented) The method of claim 55 wherein the elastic particles are present in the well fluid in an amount in the range of from about 0.01% to about 80% by volume of the well fluid.

58. (Previously Presented) The method of claim 55 wherein at least one of the elastic particles have a specific gravity in the range of from about 0.05 to about 0.99; and wherein at least one of the elastic particles have a compressibility factor in the range of from about $1.5x10^{-3}$ (1/psi) to about $1.5x10^{-9}$ (1/psi).

59. (Previously Presented) The method of claim 55 wherein at least one of the elastic particles comprises a copolymer chosen from the group consisting of: a copolymer of styrene and divinylbenzene; a copolymer of styrene and acrylonitrile; and a terpolymer of styrene, vinylidene chloride and acrylonitrile.

60.-87. (Canceled)

88. (Previously Presented) The method of claim 1 wherein at least one of the elastic particles has a specific gravity in the range of from about 0.05 to about 0.99.

89. (Previously Presented) The method of claim 1 wherein the variable density fluid has a density at sea level in the range of from about 4 lb/gallon to about 18 lb/gallon.